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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Nicolai Papke

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EXAMINER

LE, NINH V

ART UNIT

PAPER NUMBER

1791

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DELIVERY MODE

03/05/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/554,894

Applicant(s)

PAPKE ET AL.

Examiner

Ninh V. Le

Art Unit

1791

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 12-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 15-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date 10/28/05
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-11 and 15-17, drawn to a process for the production of a long-fiber-reinforced molding.

Group II, claim(s) 12-14, drawn to fiber-reinforced and thermoplastic-sheathed strand.

2. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features. Where a group of inventions is claimed in one and the same international application, the requirement of unity of invention referred to in Rule 13.1 shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression "special technical features" shall mean those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art. See MPEP 1850.

As such, the "special technical feature" of Groups I-II is a pultrusion process and is found to be obvious over Tsuya et al. (US 5,310,600) and Guerrini et al. (US 5,362,431).

3. During a telephone conversation with Ashley Pezzner on January 5, 2008 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-11 and 15-17. Affirmation of this election must be made by applicant in replying to this Office action. Claims 12-14 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.
4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).
5. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Specification

1. The disclosure is objected to because of the following informalities: The section headings are missing from the specification. Please refer to the following guideline for revision.

Appropriate correction is required.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made

to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1-5, 7-11, 15,17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glemet et al. US Patent 4937028 (hereinafter Glemet '028) (already of record) in view of Winckler et al. US Patent 6369157B1 (hereinafter Winckler '157) in further view of Sharma et al. US Patent 6090319 (hereinafter Sharma '319) (already of record).

Regarding claim 1, Glemet '028 discloses a process for production of long fiber-reinforced molding compositions (process for producing thermoplastic resins reinforced with long fibers, Column 1 Line 7-8) encompassing the steps of:

a) passing, over a surface, at least one multifilament strand of multifilaments subject to tension, so that in the at least one strand the multifilaments spread apart and form an opened multifilament strand (having passed through at least on baffle of a bar...applies a force perpendicular to width of the rovings...causes spreading of the fibers, Column 2 Line 15-17),

b) introducing the opened multifilament strand subject to tension (as stated in the

aforementioned rejection in claim 1(a)) into a first impregnator (rovings are introduced into the die for impregnation, Column 2 Line 12-13),

c) conducting a first thermoplastic molding composition into the first impregnator, where the first thermoplastic molding composition comprises at least one thermoplastic polymer (impregnated with wetting thermoplastic resin, Column 2 Line 18-19), and, optionally comprises other additives which do not adversely affect the activity of the catalyst,

d) impregnating the at least one opened multifilament strand with the plastified first thermoplastic molding composition (fibers impregnated with the wetting thermoplastic resin at a temperature preferably exceeding by approximately 40°C the melting temperature of said wetting resin...fed with the thermoplastic resin to be reinforced with fibers, Column 2 Line 49-55),

e) drawing-off of the fiber-reinforced strand formed from the first impregnator (sheet or strip...impregnated with wetting thermoplastic resin and drawn, Column 2 Line 17-19),

f) passing the fiber-reinforced strand into a second die (wetting resin impregnated fibers...entering the second die, Column 2 Line 19-20),

g) conducting a second thermoplastic molding composition, other than the first thermoplastic molding composition and comprising at least one thermoplastic polymer (polypropylene, Column 5 Line 56; note: this propylene is different from the first thermoplastic molding composition which is polypropylene grafted with maleic anhydride, Column 4 Line 59-60).

h) sheathing the fiber-reinforced strand (wetting resin impregnated fibers...entering the second die fed with coating resin, Column 2 Line 65-67) with the plastified second thermoplastic molding composition in the second die,

i) drawing-off of the fiber-reinforced strand provided with a sheath composed of the second thermoplastic molding composition from the second die (second die...from orifices of 4mm diameter of the die, were drawn reed, Column 5 Line 53-60), and

j) optionally cooling (drawn reeds...which were then cooled, Column 5 Line 60-61), molding, pelletizing and/or further processing of the fiber-reinforced strand provided with a sheath composed of the second thermoplastic molding composition.

Note, Glemet '028 discloses that the fiber impregnated with the wetting thermoplastic resin is heated above 40°C the melting temperature of the wetting resin and then fed with the thermoplastic resin (Column 2 Line 46-55) and the second thermoplastic molding composition which is polypropylene at 230°C was fed into a second die maintained at 210°C (Column 5 Line 53-57). Therefore, it is considered that the first and second thermoplastic molding compositions are plastified at these operating temperatures.

However, Glemet '028 failed to teach at least one catalyst which catalyzes the formation of covalent bonds between the thermoplastic polymer and the surface of the multifilaments in the first impregnator and additives added into the second die.

In the same field of endeavor, Winckler '157 discloses in regard to claim 1(c), at least one catalyst (pulling a fibrous strand into an elongated die, moving the macrocyclic polyester oligomer and the polymerization catalyst, Column 17 Line 64-66)

which catalyzes the formation of covalent bonds between the thermoplastic polymer and the surface of the multifilaments in the first impregnator (cause polymerization of the macrocyclic polyester obligomer forming high molecular weight polyester resin matrix around the fibrous strand, Column 18 Line 2-4).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching of Glemet '028 with that of Winckler '157 to obtain the invention as stated in claim 1; and to combine the process of manufacturing a long fiber-reinforced composition utilizing the thermoplastic polymer as disclosed by Glemet '028 with the use of a catalyst as disclosed by Winckler '157 for the benefit of optimizing the process of catalyzing the polymerization of the macrocyclic polyester obligomer (Winckler '157, Column 5 Line 64-67). In addition, the "ready-to-use" one component of the macrocyclic polyester obligomer and polyesterization catalyst disclosed by Winckler '157 avoids the need for equipment modification thereby reducing time and cost of manufacture while expanding the application of macrocyclic polyester obligomer (Winckler '157, Column 1 Line 58-64).

However, the hypothetical teaching combination of Glemet '028 and Winkler '157 failed to teach additives added into the second die.

In the same field of endeavor, Sharma '319 discloses in regard to claim 1(g), additives added into the second die (coating die 15...second thermoplastic resin material and an additive material, Column 4 Line 46-48).

Thus, it would have been obvious to one having ordinary skill in the art at

the time the invention was made to combine the hypothetical teaching combination of Glemet '028 and Winkler '157 with that of Sharma '319 to obtain the invention as stated in claim 1; and to combine the process of manufacturing a long fiber-reinforced composition utilizing the thermoplastic polymer and a catalyst as disclosed by the hypothetical teaching of Glemet '028 and Winkler '157 with the addition of an additive material in the second die as disclosed by Sharma '319 for the benefit of optimizing the molding properties as well as physical and chemical properties of shaped articles (Sharma '319, Column 5 Line 60-62).

Regarding claim 2, Glemet '028 discloses wherein a plurality of opened multifilament strands, are introduced into the first impregnator (prior to passing into the impregnation die, are expanded so as to spread out substantially side by side each one of the fibers of the roving, Column 2 Line 6-9).

Regarding claim 3, Glemet '028 discloses wherein the fiber-reinforced strand provided with a sheath composed of the second thermoplastic molding composition is cooled (as stated in the aforementioned rejection in claim 1(i)), molded, chopped into pellets, and/or further processed after leaving the second die.

Note, sheathing occurred during the resin coating in the second die or coating die (Column 2 Line 65-67).

Regarding claim 4, Sharma failed to teach wherein the first thermoplastic molding composition is substantially composed of at least one thermoplastic polymer, of at least one catalyst, and, optionally of at least one antioxidant, and wherein the

proportion of the multifilaments is from 10 to 80% by weight, based on the weight of the fiber- reinforced rod leaving the first impregnator .

In the same field of endeavor, Glemet '028 discloses in regard to claim 4, wherein the first thermoplastic molding composition is substantially composed of at least one thermoplastic polymer (impregnated with wetting thermoplastic resin, Column 2 Line 18-19), and, optionally of at least one antioxidant, and wherein the proportion of the multifilaments is from 10 to 80% by weight, based on the weight of the fiber- reinforced rod leaving the first impregnator (the continuous fibers impregnated...wetting resin...70 to about 75% by weight of fibers, Column 3 Line 14-16).

Note, it is the Examiner's position that impregnation of the rovings with the wetting thermoplastic resin (Column 2 Line 12-19) causes the fiber strands to be reinforced. Also, Glemet '028 discloses that reeds of 4mm diameter were made from the first die. Therefore, the fiber leaving the first impregnator is a fiber-reinforced rod.

Regarding claim 4, Glemet '028 failed to teach wherein the first thermoplastic molding composition is substantially composed of at least one catalyst,

In the same field of endeavor, Winckler '157 discloses in regard to claim 4, wherein the first thermoplastic molding composition is substantially composed of at least one catalyst (pulling a fibrous strand into an elongated die, moving the macrocyclic polyester oligomer and the polymerization catalyst, Column 17 Line 64-66).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the hypothetical teaching

combination of Glemet '028 Sharma '319 with that of Winkler '157 to obtain the invention as stated in claim 4; and to combine the process of manufacturing a long fiber-reinforced composition utilizing the thermoplastic polymer and the addition of an additive material in the second die as disclosed by the hypothetical teaching of Glemet '028 and Sharma '319 with the catalyst as disclosed by Winkler '157 for the benefit of optimizing the process of catalyzing the polymerization of the macrocyclic polyester obligomer (Winckler '157, Column 5 Line 64-67). In addition, the "ready-to-use" one component of the macrocyclic polyester obligomer and polyesterization catalyst disclosed by Winckler '157 avoids the need for equipment modification thereby reducing time and cost of manufacture while expanding the application of macrocyclic polyester obligomer (Winckler '157, Column 1 Line 58-64).

Regarding claims 5, 7, and 11, Winckler '157 discloses wherein the catalyst in the first molding composition is a catalyst which catalyzes transesterification (*transesterification catalyst, Column 5 Line 51*), transamidation, or transurethanization reactions, or which catalyzes the formation of ester groups, amide groups, and urethane groups and wherein the catalyst in the first molding composition is selected from the group consisting of phosphonium salts, phosphanes, ammonium salts, sulfonium salts, titanates (*tetra(2-ethylhexyl) titanate, tetraisopropyl titanate, tetrabutyl titanate, titanate compound...used as polymerization catalyst, Column 6 Line 45-48*), titanyl compounds, zirconates, and mixtures of these and ethyltriphenylphosphonium bromide, tetraphenylphosphonium bromide, tetrabutylphosphonium bromide, stearyltributylphosphonium bromide, triphenylphosphane, n-butyl titanate (*tetrabutyl*

titanate, Column 6 Line 46), and mixtures of these.

Regarding claim 8, Sharma '319 discloses wherein the additive in the second molding composition is selected from the group consisting of mineral fillers (calcium carbonate, silica, mica, clays, talc, calcium silicate, graphite, wollastonite, calcium silicate, alumina trihydrate, barium ferrite, Column 6 Line 13-16), colorants (pigments, Column 5 Line 66-67), antistatic agents, lubricants (lubricants, Column 6 Line 10), tribological auxiliaries, antioxidants, UV stabilizers (ultraviolet light resistant agents, Column 6 Line 11-12), acid scavengers, coupling agents, mold-release agents, nucleating agents, ultrahigh-molecular-weight polyethylene, impact modifiers, elastomers, and mixtures thereof.

Regarding claim 9, Sharma '319 discloses wherein, in the second molding composition, additives are used which are present in a separate phase in the polymer matrix (clays, Column 6 Line 14).

The clay as disclosed by Sharma '319 exists in a solid state which a different phase from the liquid state polypropylene as disclosed by Glemet '028 as stated in the aforementioned rejection in claim 1(g).

Regarding claims 10 and 17, Glemet '028 discloses wherein the thermoplastic polymer for the first molding composition and/or the second molding composition is selected from the group consisting of polyolefin, polyacrylate, polymethacrylate, polymers obtainable by polymerizing esters and/or amides of acrylic acid or methacrylic acid (polypropylene grafted with maleic anhydride or acrylic acid, Column 4 Line 33-34), copolymers of these, polyamides (polyamide, Column 4 Line 5), polyesters,

polycarbonate, polyethers, polythioethers, polyacetals, polyphenylene oxides, polyarylene sulfides, and mixtures of these and polypropylene (polypropylene, Column 4 Line 5), polyethylene (polyethylene, Column 4 Line 27), a modified polyolefin.

Regarding claim 15, Glemet '028 discloses wherein from one to a hundred of opened multifilament strands are introduced into the first impregnator (as stated in the aforementioned rejection in claim 2).

Glemet '028 and the claims differ in that Glemet '028 does not teach the exact same proportion of one to a hundred as recited in the instant claim.

However, one of ordinary skill in the art at the time the invention was made would have been considered the invention to have been obvious because the compositional proportions taught by Glemet '028 overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that;

"The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages", In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Glemet et al. US Patent 4937028 (hereinafter Glemet '028) (already of record) in view of Winckler

et al. US Patent 6369157B1 (hereinafter Winckler '157) in further view of Sharma et al. US Patent 6090319 (hereinafter Sharma '319) (already of record) and in further view of Chung et al. US Patent 4588538 (hereinafter Chung '538).

From the aforementioned rejection, the hypothetical combination of Glemet '028, Winckler '157, and Sharma '319 teaches all of the limitation of claim 1 as it applies to the dependent claim 6.

However, the hypothetical combination of Glemet '028, Winckler '157, and Sharma '319 failed to teach wherein the catalyst in the first molding composition is a Lewis acid.

In the same field of endeavor, Chung '538 discloses in regard to claim 6, wherein the catalyst in the first molding composition is a Lewis acid (representative catalysts...Lewis acids, Column 8 Line 15-23).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the hypothetical teaching combination of Glemet '028, Winckler '157, and Sharma '319 with that of Chung '538 to obtain the invention as stated in claim 6; and to combine the process of manufacturing a long fiber-reinforced composition utilizing a thermoplastic polymer, a catalyst, and an additive material as disclosed by the hypothetical teaching combination of Glemet '028, Winckler '157, and Sharma '319 with the Lewis acid catalysts as disclosed by Chung '538 for the benefit of optimizing the catalytic polymerization of a polymer.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Glemet et al. US Patent 4937028 (hereinafter Glemet '028) (already of record) in view of Winckler et al. US Patent 6369157B1 (hereinafter Winckler '157) in further view of Sharma et al. US Patent 6090319 (hereinafter Sharma '319) (already of record) and in further view of Evans US Patent 5709933 (hereinafter Evans '933).

From the aforementioned rejection, the hypothetical combination of Glemet '028, Winckler '157, and Sharma '319 teaches all of the limitation of claim 1 as it applies to the dependent claim 16.

However, the the hypothetical combination of Glemet '028, Winckler '157, and Sharma '319 failed to teach wherein the additive in the second molding composition is elastomer.

In the same field of endeavor, Evans '933 discloses in regard to claim 16, wherein the additive in the second molding composition is elastomer (melting EPDM rubber into polyethylene, Column 4 Line 54).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the hypothetical teaching combination of Glemet '028, Winckler '157, and Sharma '319 with that of Evans '933 to obtain the invention as stated in claim 16; and to combine the process of manufacturing a long fiber-reinforced composition utilizing thermoplastic polymer, a catalyst, and an additive material as disclosed by the hypothetical teaching combination of Glemet '028, Winckler '157, and Sharma '319 with the EPDM rubber as disclosed by

Evans '933 for the benefit of maximizing the coupling between the thermoplastic polymer and the fibers (Evans '933, Column 4 Line 54-55).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shirai et al. US Patent 5534210.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ninh V. Le whose telephone number is (571)270-3828. The examiner can normally be reached on Monday - Friday 7:30 AM - 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Del Sole can be reached on (571)272-1130. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NVL

/Joseph S. Del Sole/

Supervisory Patent Examiner, Art Unit 1791